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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/533,650

11/25/2005

Haruo Wakayama

YAMAP0979US

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09/08/2008

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EXAMINER

MICHAŁSKI, SEAN M

ART UNIT

PAPER NUMBER

3724

MAIL DATE

DELIVERY MODE

09/08/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/533,650

**Applicant(s)**

WAKAYAMA, HARUO

**Examiner**

SEAN M. MICHALSKI

**Art Unit**

3724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 June 2008.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.  
4a) Of the above claim(s) 2-4, 6-13, 17 and 18 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1, 5 and 14-16 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO/S5108)  
Paper No(s)/Mail Date 8/12/2008  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Applicant's election without traverse of Group XII (claims 14 and 15) in the reply filed on 2/21/2008 is acknowledged.

Applicant has questioned on what basis claim 2 was not examined: on the basis of its restriction from claims 14 and 15 which was not traversed. Applicant did not point out any invalidity in the restriction of claim 2, and had "request[ed] consideration of claim 2" (papers filed 2/21/2008). Such a request does not need to be explicitly treated, the Restriction itself serving to explain why claim 2 was not treated—it had been properly restricted.

2. In the present amendment, claims 17 and 18 have been added, respectively depending from claims 1 and 14. These are not drawn to the elected group. Newly submitted claims 17 and 18 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: they require "a spring adjacent to the blade...that applies a downward force" not required by the elected group.

Since applicant has received an action on the merits for the originally presented invention (elected group XII), this invention has been elected by original presentation for prosecution on the merits. Accordingly, claims 17 and 18 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 5, and 14-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant has inserted the language "a single" into each independent claim, and in so doing has rendered the claims indefinite. In the specification the apparatus and method of the invention is described as being used to actuate multiple impacts, on demand, as dictated by the control means for the impact force applying means. If the invention is actuated multiple times in accordance with the invention, and the claim limits the abrupt impact to a single impact force, then there is an inconsistency present which renders the claims indefinite. The device must at least be capable of applying impact forces at the edge, the near edge and the overlap ("intersection") points. This is much more than "a single" and therefore the scope of the claims is unclear. The claims are indefinite, and contradictory to the specification.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 5, 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoekstra et al (US 6,489,588) in view of Ishikawa et al. (US 6,536,121).

Hoekstra discloses in figure 3 a vertical crack forming member (60) with a blade tip (62: a "scribe wheel" is a blade tip) a heating means (41) a cooling means (42, 50, etc.; are a "quenching" device—which is a cooling means) an arrangement movement means (28 figure 2) and a control unit (36 figure 2). Regarding claim 5, *the order* : (1) vertical crack forming member, (2) heating means, and (3) cooling means is clearly observed in figure 3.

Hoekstra does not explicitly disclose that the heating of the substrate is to a temperature "below the softening point", but does disclose that "modeling and experimentation can determine optimum LSAD parameters" which implies that the other heating element (the DALCE of the ICD) should also be optimized.

Examiner takes official notice of the fact that scoring operations are best when the substrate is *below the softening point* (the point at which materials with no defined melting point switch from viscous to plastic flow - and vice versa), since *scoring* is most effective when a material is *not* plastically deforming.

It would have been obvious to one of ordinary skill in the art to select a heated temperature below the softening point of the substrate, since Hoekstra demonstrates that experimentation and modeling is to be applied to determine the heating parameters of the device, and additionally, it has been held that discovering an optimum result of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). That is to say, determining the desired temperature of the

substrate, and ensuring that the lasers used created that temperature would have been routine in the art.

Hoekstra does not disclose an "impact force applying means".

Ishikawa discloses a scribing tool which vibrates or oscillates up and down (see figure 8 and abstract), varying the pressure applied to a substrate. Each vibration constitutes an "abrupt impact", as would a small packet of vibrations (several oscillations and then cessation). It is clear on the face of Ishikawa that the impact may be selectively actuated, and is therefore capable of applying a vibration (singular) or a small packet of vibrations (a single "abrupt impact force") on the basis of selective actuation in order to "deeply penetrate" the substrate.

It would have been obvious to a person having ordinary skill in the art at the time of the invention to make the scribe wheel of Hoekstra an impact force applying scribe wheel, since doing so allows for "deep vertical cracks" (Column 2 lines 2-3) as taught by Ishikawa. Adding an impact creates a deep crack, without the use of a high static load which means that a thicker substrate may be snapped without a risk of horizontal cracking.

7. Claims 1, 5, 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoekstra in view of Insolio (US 3,276,302).

Hoekstra discloses in figure 3 a vertical crack forming member (60) with a blade tip (62: a "scribe wheel" is a blade tip) a heating means (41) a cooling means (42, 50, etc.; are a "quenching" device—which is a cooling means) an arrangement movement

means (28 figure 2) and a control unit (36 figure 2). Regarding claim 5, *the order* : (1) vertical crack forming member, (2) heating means, and (3) cooling means is clearly observed in figure 3.

Hoekstra does not explicitly disclose that the heating of the substrate is to a temperature "below the softening point", but does disclose that "modeling and experimentation can determine optimum LSAD parameters" which implies that the other heating element (the DALCE of the ICD) should also be optimized.

Examiner takes official notice of the fact that scoring operations are best when the substrate is *below the softening point* (the point at which materials with no defined melting point switch from viscous to plastic flow - and vice versa), since *scoring* is most effective when a material is *not* plastically deforming.

It would have been obvious to one of ordinary skill in the art to select a heated temperature below the softening point of the substrate, since Hoekstra demonstrates that experimentation and modeling is to be applied to determine the heating parameters of the device, and additionally, it has been held that discovering an optimum result of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). That is to say, determining the desired temperature of the substrate, and ensuring that the lasers used created that temperature would have been routine in the art.

Hoekstra does not disclose an "impact force applying means".

Insolio discloses a scribing tool that has a solenoid actuated cutting member (14 is a cutting member, actuated by Solenoid 20). The solenoid can be controlled so as to

control the pressure/ force of the cutting tool throughout different operations. It may press down or retract, and there are in addition springs (162) which bias the carriage 130 up (away from the engaged position- figures 7-9). Insolio is also concerned with the timing of the impact upon the glass (substrate) (see column 3 lines 1-5). The operation of the device, includes a solenoid and a spring attached to the cutting tool and the body of the device, (see figures 7-9) so as to allow the cutting wheel to be placed onto a substrate gently, and then "instantly applying full cutting voltage". (Column 3 lines 6 and 7). In this device, it can be seen that an abrupt impact force is used to engage the cutter with the substrate, at the edge of the substrate, or any other location a user would desire to begin a scribe line. Always in accordance with the invention the cutting element will be placed on the substrate (whether at an edge, and intersection, near an edge, etc.) and then the device will force the abrupt impact of the cutter so as to create a deep vertical crack (scribe line).

It would have been obvious to one of ordinary skill in the art to use the impact force applying means disclosed by Insolio in the device of Hoekstra, since doing so avoids the problem of "impact...that is often injurious to the glass" (column 3 lines 1-5) since it is controlled until after the glass has been contacted.

### ***Response to Arguments***

8. Applicant's arguments filed 6/30/2008 have been fully considered but they are not persuasive.



Applicant alleges that "examiner considers each vibration to constitute an abrupt impact". This is within the scope of the term, as the standard of claim interpretation during prosecution is as follows: "claims in a pending application should be given their broadest reasonable interpretation" consistent with the specification and prior art. In re Pearson , 181 USPQ 641 (CCPA 1974). See additionally MPEP 904.01, and also In re Morris, 127 F.3d 1048, 44 USPQ2d 1023 (Fed. Cir. 1997). It has been established that during examination, where applicant has the ability to amend claims, the standard of claim interpretation is that the broadest reasonable interpretation be given to all the terms of a claim, *absent a specific definition provided in the specification*, which would then control. Examiner in the present action has also construed "abrupt impact" to include vibration "packets".

Applicant alleges that the "different scribing technologies" of Hoeksta and Ishikawa should bar their combination, since doing so would "change the principle of operation...". This is not true. Neither the scribing of Ishikawa, nor the cooling/heating of Hoekstra is being modified. Using a "micro-crack" in accordance with Hoekstra, heating and cooling will stress the scribe into a crack. If the "micro-crack" is replaced with a crack, then application of heating and cooling will deepen the crack. The heating and cooling will apply to the crack the same way whether it is a "micro-crack" or a "standard crack". Larger cracks are of course easier to propagate--- however this would fall under "ordinary" experimentation, to determine the appropriate amount of heat stress to apply to a crack based on it's geometry. In essence the functions would remain the same, only the heat stress would need to be selected based on a different depth of crack. This

is not what In re Ratti (cited by applicant pp. 8 of 10 of the remarks filed 6/30/08) was dealing with. *Ratti* deals with a situation in which the principles of operation, and the intended uses of the art sought to be combined were in different fields of endeavor (such as an annular seal for a movable shaft, as compared to a coffee maker (see In re Ratti; 270 F2d 810 (1959)). In the present case both pieces of art are concerned with the scribing of brittle substrates.

Applicant alleges that examiner is wrong to combine Ishikawa, since the vibrating scribe wheel does not cause the device to function so as to prevent "damage on the work surface". Examiner is indifferent to this, but thinks it is more appropriate to consider whether the vibrating ("impacts") is used to cause deep penetration. This is the case, and is the more important consideration. Ishikawa teaches that using an impact force will allow for deep penetration, which is a reason to combine by itself. Furthermore a person of ordinary skill may add all of the static and dynamic loading they want on the basis of preventing damage to the work surface. The fact that additional elements maybe desirable to make a principle function to its best is not in itself a reason not to combine.

Applicant alleges that "Ishikawa teaches away from employing a single abrupt impact...", but Examiner disagrees. Applicant sites as evidence that "Ishikawa teaches that the application of a static load" can cause horizontal cracking. Examiner is unsure how applicant has construed "static load" to read on "abrupt force". A static load is a load that is not changing and therefore is not an "abrupt impact". Ishikawa teaches broadly to control the impact and loading of the scribe over time, including the times that

it is to dynamically impact and times when it is to apply pressure to the substrate. Not necessarily to avoid all impact or all static load. There has not been established sufficient evidence to make a showing of teaching away.

Applicant alleges that "claims 1 and 14 have been amended to clarify..." however this is not the case, as the amendment causes a serious indefiniteness issue.

Claim 2 is withdrawn. For additional explanation see the restriction heading set forth above in this paper.

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SEAN M. MICHALSKI whose telephone number is (571)272-6752. The examiner can normally be reached on M-F 7:30AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer Ashley can be reached on 571-272-4502. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sean M Michalski/  
Examiner, Art Unit 3724

/Kenneth Peterson/  
Primary Examiner, Art Unit 3724